

REMARKS

This Response is submitted in reply to the Office Action dated May 28, 2009. Claims 35 to 67, 69, 70, 72, and 74 are currently pending in this application. Claims 1 to 34 and 68, 71, and 73 were previously canceled. Claims 35, 69, and 74 are in independent form. Claims 35 to 67, and 74 have been amended by way of this response. Please charge Deposit Account No. 02-1818 for any payments due in connection with this Response.

The Office Action objected to claims 36-67, 69, 70, and 74 for informalities associated with "at least one" language. Appropriate correction has been made..

The Office Action rejected claims each of the independent claims under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2002/0061734 to Ito ("Ito") in view of U.S. Patent No. 7,065,379 to Kim et al. ("Kim"). Applicant respectfully disagrees with, and traverses, such rejections.

Independent claim 35 is directed to a wireless communication device including, among other elements, at least one first current-conducting corrective element coupled to the at least one circuit board, wherein the at least one first current-conducting corrective element comprises at least one current conducting track for increasing a current level capacity in the at least one first current-conducting corrective element relative to a total current level capacity directly from the circuit board, and wherein the first current-conducting corrective element is embodied such that at least one of an amplitude level and a phase angle of electrical currents on the at least one antenna, the at least one circuit board, and the at least one first current-conducting corrective element, is adjusted in relation to each other to distribute the electrical currents in a substantially even manner, and to reduce electromagnetic exposure which results from the electrical currents.

Applicant submits that neither Ito or Kim alone, nor the combination of Ito and Kim, discloses or renders obvious that the at least one first current-conducting corrective element comprises at least one current conducting track for increasing a current level capacity in the at least one first current-conducting corrective element relative to a total current level capacity directly from the circuit board. Ito is directed to a conductive plate 3 coupled to a shield case 2 such that the impedance between the shield case 2 and the conductive plate 3 becomes approximately infinite at the electrically opened end, while becoming close to zero at the short circuit forming end. (¶38, ll. 1-4). Ito further states that under this arrangement, the maximum

value of the local average SAR at the hot spot 6 can be effectively reduced. (¶38, ll. 4-6). That is, “since the impedance between the shield case 2 and the conductive plate 3 gradually increases from the short circuit forming end to the electrically opened end, the high-frequency current corresponding to the radio communication frequency has difficulty in flowing in the shield case 2. So, the amount of radiation of the electromagnetic waves from the shield case 2 is reduced.” (¶38, 6-13). Applicant therefore submits that Ito, which is directed to a device which makes it difficult for current to flow in the communication device, does not disclose or render obvious at least one first current-conducting corrective element comprises at least one current conducting track for increasing a current level capacity in the at least one first current-conducting corrective element relative to a total current level capacity directly from the circuit board, as in amended independent claim 35. Likewise, Applicant submits that Kim is concerned with reducing the overall size of a communication device, while maintaining a desired “electrical length.” (col. 3, ll. 40-43). Thus, Applicant submits that Kim does not disclose at least one current conducting track for increasing a current level capacity in the at least one first current-conducting corrective element, and thus that Kim does not remedy the deficiencies of claim 35 with respect to increasing a current level capacity.

In addition, Applicant submits that neither Ito or Kim alone, nor the combination of Ito and Kim, discloses or renders obvious a wireless communication device including at least one current-conducting corrective element embodied such that at least one of an amplitude level and a phase angle of electrical currents on the at least one antenna, the at least one circuit board, and the at least one first current-conducting corrective element is adjusted in relation to each other to distribute the electrical currents in a substantially even manner, and to reduce electromagnetic exposure which results from the electrical currents. Specifically, Applicant submits that Ito discloses an antenna device and a portable radio communication device with a conductive plate shaped to impact the effective length of the conductive plate (abstract). Thus, for example, “In the antenna device, the slits make the effective length of the conductive plate $((2n+1)/4)$ times the wavelength of a radio communication frequency, wherein n is a natural number including zero (¶22, ll. 1-4). Applicant submits that Ito is silent as to at least one current-conducting corrective element embodied such that at least one of an amplitude level and a phase angle of electrical currents is adjusted. Likewise, Kim discloses that “it is an object of the present

invention to provide portable radio terminal equipment which can maintain a good radiation efficiency, while reducing the total size of a body and an antenna of the terminal equipment to $\lambda/2$ and below.” (col. 2, ll. 3-7). Thus, Applicant submits that Kim is also concerned with the impact of the conductive elements of the communication device on the SAR with respect to the wavelength of the received signal alone.

On the other hand, amended independent claim 35 is directed to a communication device including, among other elements, at least one current-conducting corrective element embodied such that at least one of an amplitude level and a phase angle of electrical currents on the at least one antenna, the at least one circuit board, and the at least one first current-conducting corrective element is adjusted in relation to each other to distribute the electrical currents in a substantially even manner, and to reduce electromagnetic exposure which results from the electrical currents. Thus, Applicant submits that Ito and Kim, alone or in combination, do not disclose or render obvious amended independent claim 35.

Claims 36 to 47, 49, 50, and 52 to 67, and 70, which depend directly or indirectly from amended independent claim 35, are also allowable for the reasons given above with respect to claim 35, and because of the additional features recited in these claims.

Independent claims 69 and dependent claim 72, which depends directly from independent claim 69, includes certain similar elements to amended independent claim 35. For reasons similar to those given above with respect to claim 35, and because of the additional features recited in these claims, Applicant respectfully submits that independent claim 69 and dependent claim 72 are each patentably distinguished over Ito in view of Kim and are in condition for allowance.

Independent claim 74 is directed to a wireless communication device including, among other elements, at least one current-conductive corrective element that compensates current to reduce overall current away from the at least one circuit board by increasing current on the at least one current-conductive corrective element in a direction opposite of current flowing on the at least one circuit board. Applicant initially submits (and the Office Action admitted) that claim 74 includes certain similar elements to independent claims 35 and 69. Thus, for reasons similar to those given above with respect to claims 35 and 69, and because of the additional features

recited in claim 74, Applicant submits that claim 74 is patentably distinguished over Ito in view of Kim and is in condition for allowance.

Moreover, Applicant submits that Ito in view of Kim do not disclose or render obvious at least one current-conductive corrective element that compensates current to reduce overall current away from the at least one circuit board by increasing current on the at least one current-conductive corrective element in a direction opposite of current flowing on the at least one circuit board, as in claim 74. Specifically, Ito and Kim are both silent as to the directions of current flow, and the impact of such directions on the emitted energy. Thus, for this additional reason, Applicant respectfully submits that amended independent claim 74 is patentably distinguished over Ito in view of Kim and is in condition for allowance.

An earnest endeavor has been made to place this application in condition for formal allowance and is courteously solicited. If the Examiner has any questions regarding this Response, Applicant respectfully requests that the Examiner contact the undersigned.

Respectfully submitted,

K&L GATES LLP

BY 

James F. Goedken
Reg. No. 44,715
Customer No. 24573

Dated: August 28, 2009